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EXAMINER	
LEE, CHEUKFAN	

ART UNIT	PAPER NUMBER
2625	

DATE MAILED: 09/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/065,354	CHANG, CHIN-LIN	
	Examiner	Art Unit	
	Cheukfan Lee	2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 June 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11 and 13-28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *11 and 13-28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *08 October 2002* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

1. Claims 1-11 and 13-28 are pending. Claims 13-28 are newly added. Claims 1, 6, 9, 13, 19, 22, and 26 are independent

2. Applicant's arguments with respect to claims 1-11 have been considered but are moot in view of the new ground(s) of rejection.

3. Claim 7 is objected to because on line 4, "at" should be deleted.

4. The specification is objected to for not describing a method claimed in claim 19.

5. The drawings are objected to for not showing a flowchart corresponding to the method claimed in claims 19-21.

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 1, 3-5, 22, 24-26, and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ichikawa et al. (U.S. Patent No. 6,919,974) in view of Natori (U.S. Patent No. 4,908,717).

Regarding claim 1, Ichikawa et al. discloses a document scanner having a light source with a self-collection capability (Figs. 9 and 10). The scanner comprises an optical scanning chassis (64) having a light source (70 or 50) (Figs. 9, 10 and 13) (corresponding to the claimed primary light source), the light source comprising a tube (21) having a first end and a second end, wherein the tube (21) includes a tube wall applied with a total reflective material (24), such that an opening (26) for emitting a light beam collected from scattered light is formed, and a transmission assembly (75 in Fig. 13) for supplying a driving power to the optical scanning chassis (64) (col. 6, lines 8-57, which refer to the explanation of light source (50) in Figs. 1 and 2).

Ichikawa et al. does not disclose a first light source and a second light source as auxiliary light sources disposed proximate to the first end and second end of the light source (70 or 50). Ichikawa et al. teaches coating the wall of the light source (70 or 50) with phosphor to increase luminous energy at an opening of the fluorescent light source tube (col. 3, line 58 – col. 4, line 38).

Natori discloses an image scanner using a rod-type light source. Natori states the following: "A fluorescent lamp which is generally used as a light source in the image scanner has suffered a disadvantage that the intensity of illumination around both end portions of the fluorescent glass tube of the lamp is remarkably reduced during prolonged use, consequently to make the distribution of light uneven." See col. 1, lines 22-27. Natori further discusses various means and methods through out the specification for generating a more uniform illumination distribution at the light source output. Although those means and methods of Natori do not include employing a first

light source and a second light source disposed proximate to the first end and second end of the fluorescent light tube, one of ordinary skill in the art would have realized that the simplest way to compensate for a low light level is to employ a light source at where the low light level occurs, which is at each of the two end portions of the fluorescent tube of Natori.

Since Ichikawa et al. and Natori both teach using a fluorescent light source in an image scanner (col. 3, line 59 of Ichikawa et al. and col. 1, line 22 of Natori), which fluorescent light source has the disadvantage of having remarkably reduced intensity of illumination as pointed out by Natori, and the simplest way to increase the illumination intensity at both end portions of the light source is to employ a light source at each end of the fluorescent light source as realized by one of ordinary skill in the art, it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ first light source and a second light source as two auxiliary light source at both ends of the fluorescent light tube of Ichikawa et al., respectively, in order to increase the intensity of illumination at the two ends so that the overall light output to the document being scanned is uniform.

Regarding claim 3, the total reflective material (24) is coated on an inner wall of the tube (21) of the primary light source (70 or 50) (Ichikawa et al., Figs. 9 and 10).

Regarding claim 4, the obvious scanner of Ichikawa et al. in view of Natori discussed for claim 1 above comprises the first auxiliary light source and the second

auxiliary light source. Claim 4 recites "the first auxiliary light source and the second auxiliary light source each comprise a tube at least partially coated with total reflective material". The discussion for claim 1 does not mention a kind of the auxiliary light sources. However, one of ordinary skill in the art would have recognized the fact that the use of the tube-shaped light source as the primary light source in the obvious scanner provides a spatial advantage in that not only light sources of a very small size but also light sources of a relatively larger dimension can be employed as the auxiliary light sources. Since increasing light intensity by coating the tube wall of a light source with a total reflective material is already taught by Ichikawa et al. (col. 4, lines 8-12), it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ two light source each comprising a tube coated with total reflective material, as the auxiliary light sources, in order to take advantage of high efficiency of such kind of the light sources.

Regarding claim 5, Ichikawa et al. further discloses a controlling circuitry (30i to 54), used for adjusting a light output intensity of the light source (70 or 50 in Figs. 9 and 13) (Fig. 9). Based on the discussion and the reason of obviousness given for claim 4 above, using the controlling circuitry to adjust the light output intensity of not only one but all three light sources discussed for claim 4 would have been obvious to one of ordinary skill in the art to produce the desired light output intensities.

Claim 22 is rejected for the reason given for claim 1, for claiming the similar limitations, except the "transmission assembly" of claim 1. Please refer to the discussion for claim 1.

Claims 24 and 25 are rejected for the reasons given for claims 3 and 4, respectively.

Claim 26 is rejected for the reason given for claim 1, for claiming the similar limitations, except for the "transmission assembly" of claim 1. Please refer to the discussion for claim 1.

Claim 28 is rejected for the reason given for claim 3.

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims 2, 23 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ichikawa et al. (U.S. Patent No. 6,919,974) in view of Natori (U.S. Patent No. 4,908,717) as applied to claims 1 and 22 above, and further in view of Kramer (U.S. Patent No. 4,371,897).

Regarding claim 2, Ichikawa et al. discussed for claim 1 differs from the claimed invention in that the total reflective material (24) is applied not to an outer wall but to the

interior wall of the tube (21) of the light source (70 or 50) (Figs. 9 and 10). However, a light tube (light collector 132) having a total reflective material (138) coated on a large portion of the outer wall of a tube (132), leaving an opening of the tube not coated, to increase the efficiency of the tube (132) in an image processing apparatus having a document scanner, is taught by Kramer (Fig. 6b, col. 9, lines 55-67). Although not explicit in Kramer, one of ordinary skill in the art would have realized that coating the reflective material on the outer wall of a light tube is a simpler job than coating the material on the inner wall of the tube. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply a total reflective material on the outer wall of the tube (21) of Ichikawa et al. in view of Natori, as taught by Kramer, to increase the efficiency of the light tube (21) by simplifying the coating job.

Claim 23 is rejected for the reason given for claim 2.

Claim 27 is rejected for the reason given for claim 2.

10. Claims 9, 11, 19, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ichikawa et al. (U.S. Patent No. 6,919,974) in view of Beeman (U.S. Patent No. 6,917,452).

Regarding claim 9, in Ichikawa et al., discussed for claim 1 above, the light source (70 or 50) of the document scanner (Figs. 9, 10 and 13) comprises a primary light source (50 or 70) (Figs. 9, 10 and 13) comprising a tube (21) having a tube wall, a first end, a second end, and also a center portion, wherein the tube wall is applied with

a total reflective material (24) (Figs. 9 and 10), such that an opening (26) for emitting out a light beam is formed (col. 6, lines 8-57, which refer to the explanation of light source 50 in Figs. 1 and 2). Ichikawa et al. further discloses a plurality of electrodes (23a and 23b) of the light source (70 or 50) (col. 6, lines 17-19).

Ichikawa et al. differs from the claimed invention in that the total reflective material (24) is applied to the interior tube wall of the light source (50 or 70) to have a uniform depth (col. 4, lines 8-16), while in the claimed invention the total reflective material applied proximate to the first and second ends of the tube wall has a higher density than that applied to the center portion of the tube wall. However, the concept of applying a reflective material of higher density proximate to both ends of a tube wall of a light source in a document scanner and applying a reflective material of lower density to the center portion of the tube wall, to produce a uniform light output distribution to the document is not novel but taught by Beeman (Figs. 5B and 5C, col. 4, lines 38-51). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the concept of Beeman to apply the total reflective material to the tube wall of Ichikawa et al. as claimed in order to generate a uniform light output distribution.

Regarding claim 11, coating the total reflective material (24) on the interior side of the tube wall is taught by Ichikawa et al. (Fig. 10, col. 6, lines 8-22, which refers to Fig. 2, col. 4).

Claims 19 and 21 are rejected as being method claims corresponding to the rejected apparatus claims 9 and 11, respectively.

11. Claims 10 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ichikawa et al. (U.S. Patent No. 6,919,974) in view of Beeman (U.S. Patent No. 6,917,452) as applied to claim 9 above, and further in view of Kramer (U.S. Patent No. 4,371,897).

Regarding claim 10, Ichikawa et al. discussed for claim 9 differs from the claimed invention in that the total reflective material (24) is applied not to an outer wall but to the interior wall of the tube (21) of the light source (70 or 50) (Figs. 9 and 10). However, a light tube (light collector 132) having a total reflective material (138) coated on a large portion of the outer wall of a tube (132), leaving an opening of the tube not coated, to increase the efficiency of the tube (132) in an image processing apparatus having a document scanner, is taught by Kramer (Fig. 6b, col. 9, lines 55-67). Although not explicit in Kramer, one of ordinary skill in the art would have realized that coating the reflective material on the outer wall of a light tube is a simpler job than coating the material on the inner wall of the tube. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply a total reflective material on the outer wall of the tube (21) of Ichikawa et al. in view of Beeman, as taught by Kramer, to increase the efficiency of the light tube (21) by simplifying the coating job.

Claim 20 is rejected as being a method claim corresponding to the rejected apparatus claim 10.

12. Claims 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ichikawa et al. (U.S. Patent No. 6,919,974) in view of Natori (U.S. Patent No. 4,908,717) and Kawai et al. (U.S. Patent No. 6,360,030).

Regarding claim 6, Ichikawa et al. discloses a document scanner having a light source with a self-collection capability (Figs. 9 and 10). The scanner comprises an optical scanning chassis (64) having a light source (70 or 50) (Figs. 9, 10 and 13) (corresponding to the claimed primary light source), the light source comprising a tube (21) having a first end and a second end, wherein the tube (21) includes a tube wall applied with a total reflective material (24), except at an opening (26) where a light beam formed from collecting scattered light is emitted to the document, and a transmission assembly (75 in Fig. 13) for supplying a driving power to the optical scanning chassis (64) (col. 6, lines 8-57, which refer to the explanation of light source (50) in Figs. 1 and 2).

Ichikawa et al. does not disclose a first light source and a second light source as auxiliary light sources disposed proximate to the first end and second end of the light source (70 or 50).

Natori discloses an image scanner using a rod-type light source. Natori states the following: "A fluorescent lamp which is generally used as a light source in the image scanner has suffered a disadvantage that the intensity of illumination around both end portions of the fluorescent glass tube of the lamp is remarkably reduced during prolonged use, consequently to make the distribution of light uneven." See col. 1, lines 22-27. Natori further discusses various means and methods through out the

specification for generating a more uniform illumination distribution at the light source output. Although those means and methods of Natori do not include employing a first light source and a second light source disposed proximate to the first end and second end of the fluorescent light tube, one of ordinary skill in the art would have realized that the simplest way to compensate for a low light level is to employ a light source at where the low light level occurs, which is at each of the two end portions of the fluorescent tube of Natori.

Since Ichikawa et al. and Natori both teach using a tube-type or rod-type light source (a primary light source) in an image scanner (col. 3, line 59 of Ichikawa et al. and col. 1, line 22 of Natori), which light source has the disadvantage of having remarkably reduced intensity of illumination as pointed out by Natori, and the simplest way to increase the illumination intensity at both end portions of the light source is to employ a light source at each end of the light source as realized by one of ordinary skill in the art, it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ first light source and a second light source as two auxiliary light source at both ends of the primary light tube of Ichikawa et al., respectively, in order to increase the intensity of illumination at the two ends so that the overall light output to the document being scanned is uniform.

With regard to the claimed "converging lens wall portion" of the tube wall of the primary light source, this limitation is not taught by Ichikawa et al. or Natori. However, a light collecting tube having a converging lens wall (7) to collect scattered lights and emit a light beam to a document being scanned in a document scanner to further increase

the efficiency of the light tube, is taught by Kawai et al. (Figs. 9 and 10, col. 7, line 48 – col. 8, line 25). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the tube wall of the tube (21) of Ichikawa et al. in view of Natori, such that the tube wall includes a converging lens wall at the opening (26 of Ichikawa et al.), as taught by Kawai et al., to further increase the efficiency of the light tube.

Regarding claim 7, the obvious scanner of Ichikawa et al. in view of Natori and Kawai et al. discussed for claim 6 above comprises the first auxiliary light source and the second auxiliary light source. Claim 7 recites "the first auxiliary light source and the second auxiliary light source each comprise a tube [at] having a converging lens wall portion". The discussion for claim 1 does not mention a kind of the auxiliary light sources. However, one of ordinary skill in the art would have recognized the fact that the use of the tube-shaped light source as the primary light source in the obvious scanner provides a spatial advantage in that not only light sources of a very small size but also light sources of a relatively longer dimension, such as a tube-type light source, can be employed as the auxiliary light sources at the ends of the primary light source. Since increasing light intensity of light output from a tube by including a converging lens wall portion as a tube wall portion of a light source is already taught by Kawai et al. (col. 7, line 48 – col. 8, line 25), it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ two light source each comprising a tube having a converging lens wall portion, as the auxiliary light sources disposed at the first

end and the second end of the primary light source, in order to take advantage of high efficiency of such kind of the light sources.

Regarding claim 8, Ichikawa et al. further discloses a controlling circuitry (30i to 54), used for adjusting a light output intensity of the light source (70 or 50 in Figs. 9 and 13) (Fig. 9). Based on the discussion and the reason of obviousness given for claim 7 above, using the controlling circuitry to adjust the light output intensity of not only one but all three light sources discussed for claim 4 would have been obvious to one of ordinary skill in the art to produce the desired light output intensities.

13. Claims 13-18 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a scanner light source comprising means for collecting scattered light and means for emitting the collected light as a beam of light having a light flux density greater than the scattered light, does not reasonably provide enablement for a scanner light source comprising means for sensing at least a portion of the emitted light. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

Claim 13 claims a scanner light source comprising "... means for sensing at least a portion of the emitted light". The specification does not provide adequate support for such a scanner light source. The light source described in the specification does not sense light.

Claim 14, which is understood to include all limitations of claim 13, recites "means for forming collecting electronic data representative of the sensed light" of the scanner light source. The specification does not provide adequate support for such a scanner light source. Also see discussion for claim 13.

Claim 15, which is understood to include all limitations of claim 13, recites "wherein the means for sensing comprises a light sensing device". The specification does not provide adequate support for such a scanner light source. Also see discussion for claim 13.

For claims 16-18, each of which is understood to include all limitations of claim 13, see discussion for claim 13.

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cheukfan Lee whose telephone number is (571) 272-7407. The examiner can normally be reached on 9:30 a.m. to 6:00 p.m., Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward L. Coles can be reached on (571) 272-7402. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Cheukfan Lee
September 2, 2006